

# CRUISE CONTROL SYSTEM

## PRECAUTION

### 1. HANDLING PRECAUTION FOR CRUISE CONTROL SYSTEM

- (a) Turn the cruise control main switch OFF when not using the cruise control system.
- (b) Be careful as the vehicle speed increases when driving downhill with the cruise control system on.
- (c) The RESUME/ACCEL operation changes according to the cruise control system status. When the cruise control system is operating, ACCEL operates. When the cruise control system is not operating, RESUME operates.
- (d) When the cruise control system is operating and the CRUISE main indicator light blinks, turn the cruise control main switch OFF to reset the cruise control system. After the reset, if the cruise control main switch cannot be turned ON, or the cruise control system is canceled immediately after turning the cruise control main switch ON, the system may have a malfunction.
- (e) Do not use the cruise control system where the road conditions are as follows:
  - Heavy traffic
  - Steep downhill
  - Roads with sharp turns
  - Icy or snowy roads
  - Slippery roads

## PARTS LOCATION

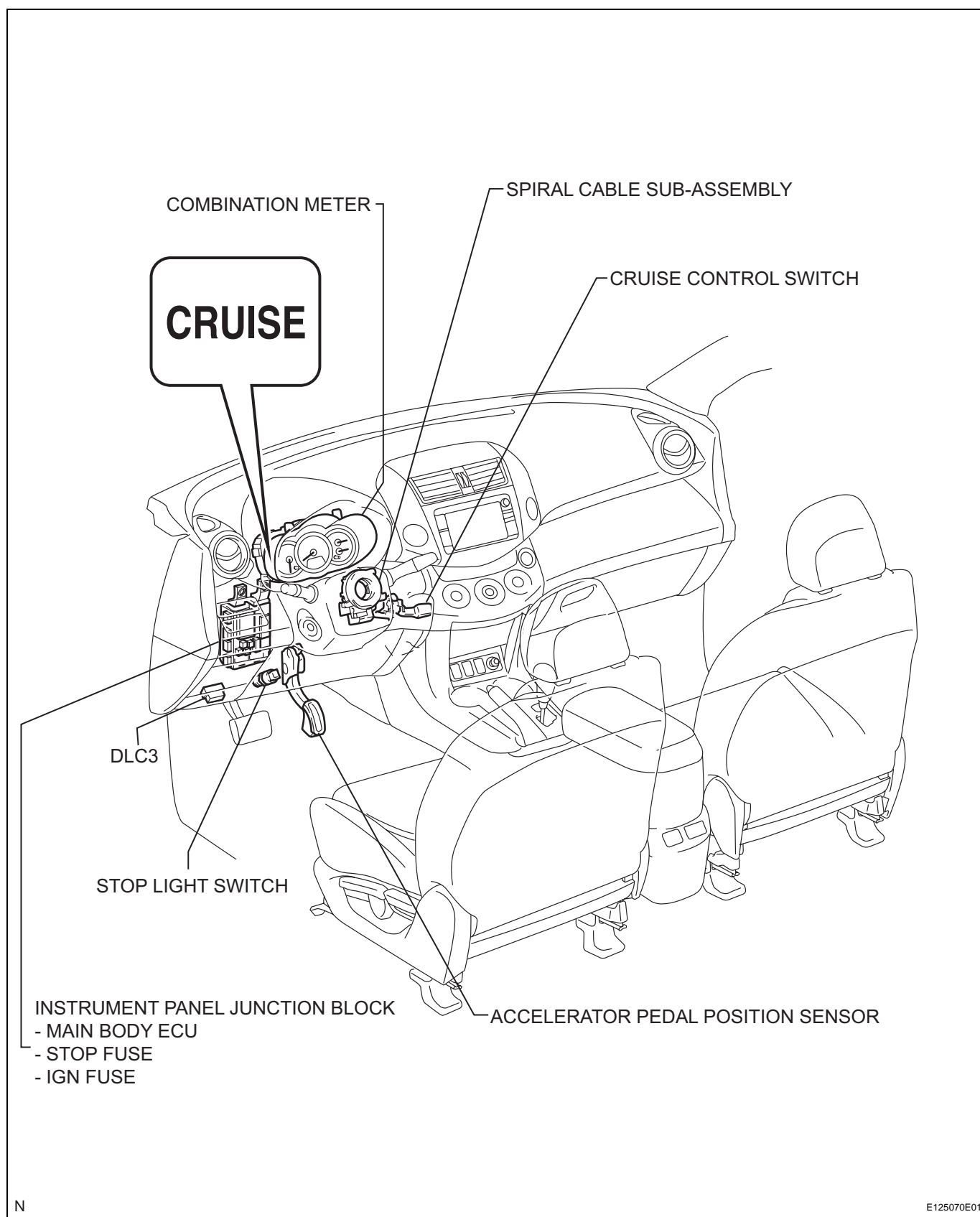
THROTTLE BODY ASSEMBLY  
- MOTOR AND SENSOR

ECM

ENGINE ROOM NO. 1 RELAY BLOCK, JUNCTION BLOCK  
- IG2 RELAY  
- ALT H-FUSE  
- AM2 H-FUSE

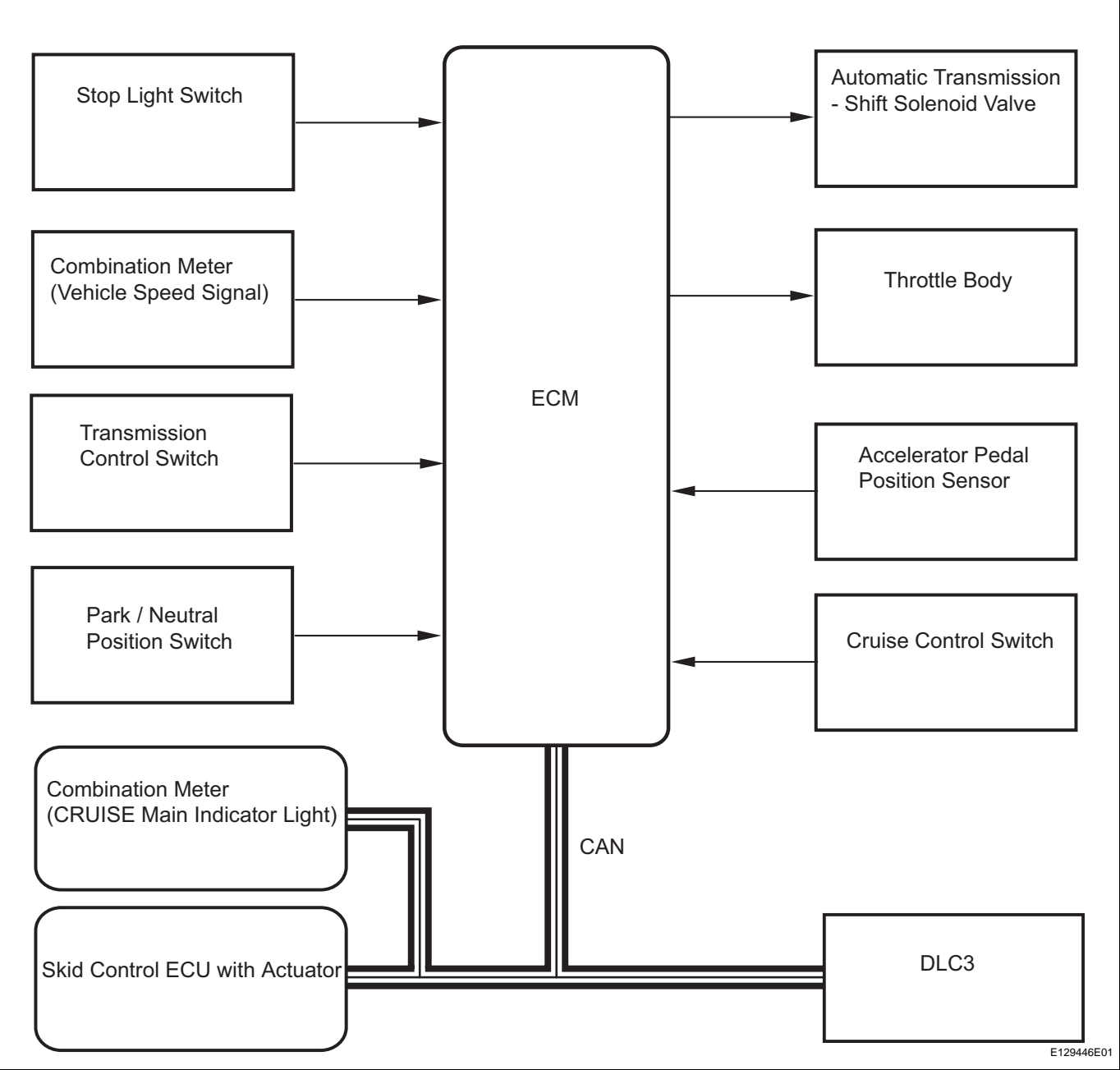
PARK / NEUTRAL POSITION SWITCH

CC



CC

SYSTEM DIAGRAM



Communication table

Sender	Receiver	Signal	Line
ECM	Skid control ECU with actuator	<ul style="list-style-type: none"><li>VSC operation signal</li><li>Coast brake operation signal</li></ul>	CAN
ECM	Combination meter	CRUISE main indicator light signal	CAN

## SYSTEM DESCRIPTION

### 1. CRUISE CONTROL SYSTEM

This system is controlled by the ECM, and is activated by the throttle position sensor and motor. The ECM controls the following functions: ON-OFF, SET / COAST, RESUME / ACCEL, CANCEL, vehicle speed operation, motor output control, and overdrive control.

- The ECM compares the driving vehicle speed from the combination meter with the stored vehicle speed set through the cruise control switch. The ECM controls the throttle valve motor of the throttle body to open the valve when the driving speed is less than the stored speed.
- The ECM receives signals such as ON-OFF, SET / COAST, RESUME / ACCEL, and CANCEL from the cruise control switch.
- The ECM illuminates the combination meter CRUISE main indicator light when it receives the cruise control switch ON signal.
- The ECM cancels the cruise control system when the brake pedal is depressed and the ECM receives the stop light switch signal.
- The ECM cancels the cruise control system when the shift lever is moved from D or 3 to a position other than D or 3, and the ECM receives the PNP switch signal.

### 2. LIMIT CONTROL

#### (a) Low speed limit

The lowest possible limit of the speed setting range is set at approximately 40 km/h (25 mph). The cruise control system cannot be set when the driving vehicle speed is below the low speed limit. Cruise control operation will be automatically canceled when the vehicle speed decreases below the low speed limit 40 km/h (25 mph) while the cruise control is in operation.

#### (b) High speed limit

The highest possible limit of the speed setting range is set at approximately 200 km/h (125 mph). The cruise control system cannot be set when the driving vehicle speed is over the high speed limit. Also, +/RES cannot be used to increase speed beyond the high speed limit.

### 3. OPERATION OF CRUISE CONTROL

The cruise control switch operates 7 functions: SET, COAST, TAP-DOWN, RESUME, ACCELERATION (ACCEL), TAP-UP, and CANCEL. The SET, TAP-DOWN and COAST functions, and the RESUME, TAP-UP and ACCEL functions are operated with the same switch. The cruise control switch is an automatic return type switch which turns on only when pressed in each arrow direction and turns off when released.

#### (a) SET CONTROL

Vehicle speed is stored and constant speed control is maintained when pushing the switch to -/SET while driving with the cruise control switch ON (the CRUISE main indicator light is illuminated), and the vehicle speed is within the set speed range (between the low and high speed limits).

#### (b) COAST CONTROL

The ECM changes the cruise control demanding throttle opening angle to 0° and decelerates the vehicle when -/SET on the cruise control switch is pressed and held while the cruise control system is operating. When the cruise control switch is released from -/SET, the vehicle speed is stored and constant speed control is maintained.

HINT:

- The throttle valve is not fully closed due to idle speed control, etc.
- w/ VSC:

The brake is also used to decelerate the vehicle.

#### (c) TAP-DOWN CONTROL

When tapping down the cruise control switch to -/SET (for approximately 0.5 seconds) while the cruise control system is in operation, the stored vehicle speed decreases each time by approximately 1.6 km/h (1.0 mph). When the cruise control switch is released from -/SET and the difference between the driving and stored vehicle speed is less than 5 km/h (3 mph), the vehicle speed is stored and constant speed control is maintained.

#### (d) ACCEL CONTROL

The throttle valve motor of the throttle position sensor and motor is instructed by the ECM to open the throttle valve when +/RES on the cruise control switch is pressed and held while the cruise control system is operating. When the cruise control switch is released from +/RES, the vehicle speed is stored and constant speed is maintained.

(e) TAP-UP CONTROL

When tapping up the cruise control switch to +/RES (for approximately 0.5 seconds) while the cruise control system is in operation, the stored vehicle speed increases each time by approximately 1.6 km/h (1.0 mph). However, when the difference between the driving and the stored vehicle speed is more than 5 km/h (approximately 3.1 mph), the stored vehicle speed will not be changed.

(f) RESUME CONTROL

If the cruise control operation was canceled with the stop light switch or the CANCEL switch, and if driving speed is within the set speed range, setting the cruise control switch to +/RES restores the vehicle speed memorized at the time of cancellation, and constant speed is maintained.

(g) MANUAL CANCEL CONTROL

Performing any of the following cancels the cruise control system (the stored vehicle speed in the ECM is maintained).

- Depressing the brake pedal
- Moving the shift lever to any position except D or 3
- Pulling the cruise control switch to CANCEL
- Pushing the cruise control switch OFF (the stored vehicle speed in the ECM is not maintained)

**4. AUTO CANCEL (FAIL-SAFE)**

This system has an automatic cancellation function (fail-safe) (see page [CC-17](#)).

## HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use these procedures to troubleshoot the cruise control system.
- \*: Use the intelligent tester.

### 1 VEHICLE BROUGHT TO WORKSHOP

NEXT

### 2 INSPECT BATTERY VOLTAGE

**Standard voltage:**

**11 to 14 V**

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

### 3 CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM\*

- (a) Use the intelligent tester (with CAN VIM) to check if the CAN Communication System is functioning normally.

**Result:**

Result	Proceed to
CAN DTC is not output	A
CAN DTC is output	B

**B**

**Go to CAN COMMUNICATION SYSTEM**

**A**

**CC**

### 4 CHECK INDICATOR LIGHT

NEXT

### 5 CHECK DTC\*

- (a) Check for a DTC and note any codes that are output.  
 (b) Delete the DTC.  
 (c) Recheck for DTCs, and try to prompt the DTC by simulating the original activity that the DTC suggests.

**Result**

Result	Proceed to
DTC does not reoccur	A
DTC reoccurs	B



**B** **Go to step 8**

**A**

**6** **PROBLEM SYMPTOMS TABLE**

**Result**

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

**B** **Go to step 8**

**A**

**7** **OVERALL ANALYSIS AND TROUBLESHOOTING\***

- (a) Terminals of ECM (see page [CC-13](#))
- (b) DATA LIST / ACTIVE TEST (see page [CC-17](#) )

**NEXT**

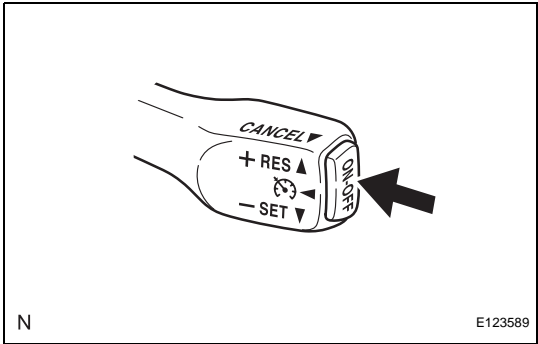
**8** **REPAIR OR REPLACE**

**NEXT**

**9** **CONFIRMATION TEST**

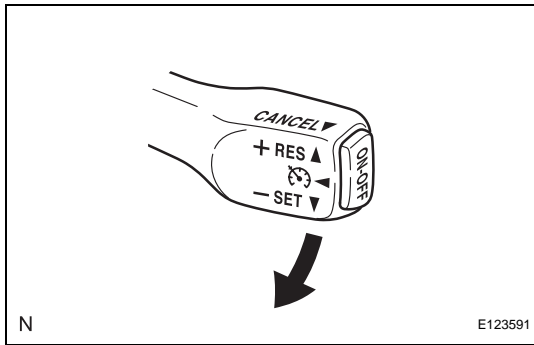
**NEXT**

**END**



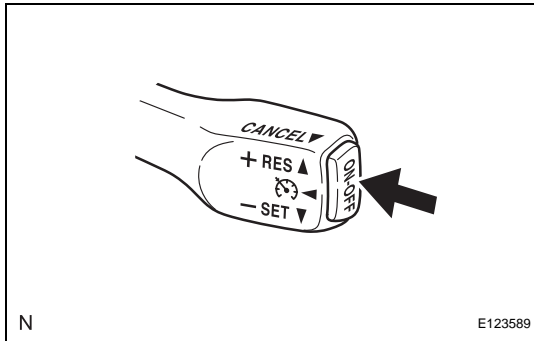
**ROAD TEST**

- 1. INSPECT SET SWITCH**
- (a) Push the main switch ON.
  - (b) Drive at a desired speed (40 km/h (25 mph) or higher).

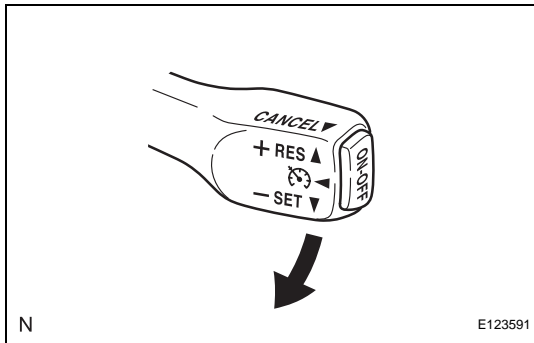


- (c) Press the control switch to -/SET.
- (d) After releasing the switch, check that the vehicle cruises at the desired speed.

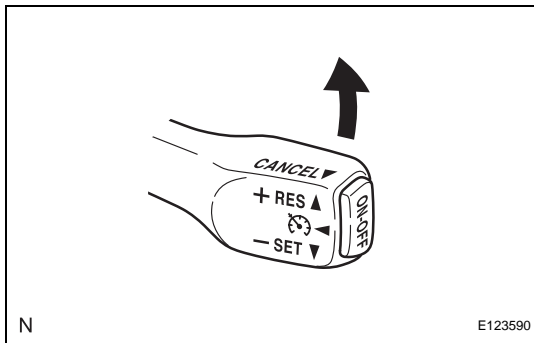
## 2. INSPECT "+" SWITCH



- (a) Push the main switch button ON.
- (b) Drive at a desired speed (40 km/h (25 mph) or higher).

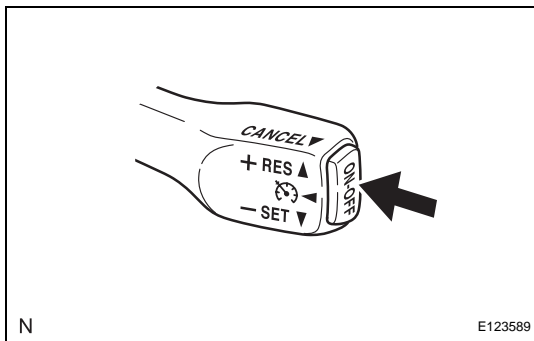


- (c) Press the control switch to -/SET.
- (d) Check that the vehicle speed increases while the control switch is pressed to +/RES, and that the vehicle cruises at the set speed when the switch is released.

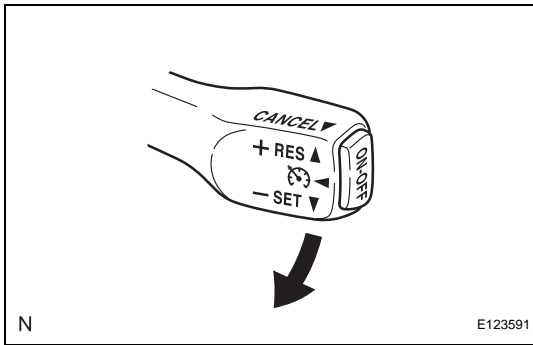


- (e) Momentarily press the control switch to +/RES and then immediately release it. Check that the vehicle speed increases by about 1.6 km/h (1 mph) (Tap-up function).

## 3. INSPECT "-" SWITCH

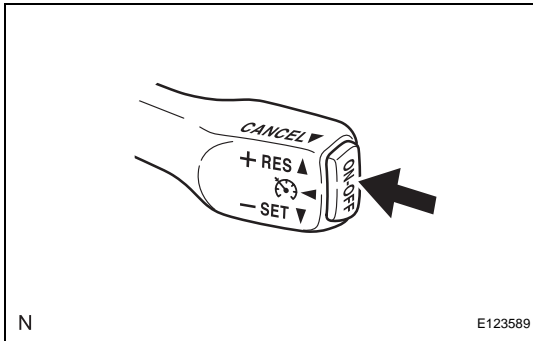


- (a) Push the main switch button ON.
- (b) Drive at a desired speed (40 km/h (25 mph) or higher).

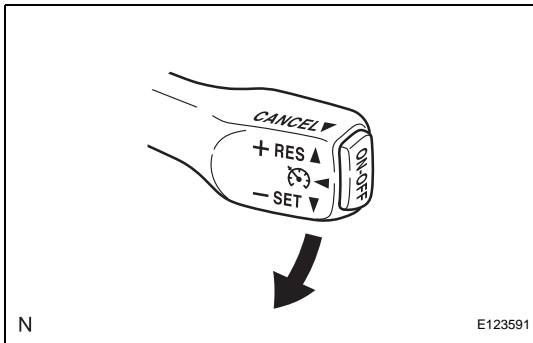


- (c) Press the control switch to -/SET.
- (d) Check that the vehicle speed decreases while the control switch is pressed to -/SET, and the vehicle cruises at the set speed when the switch is released.
- (e) Momentarily press the control switch to -/SET, and then immediately release it. Check that the vehicle speed decreases by about 1.6 km/h (1 mph) (Tap-down function).

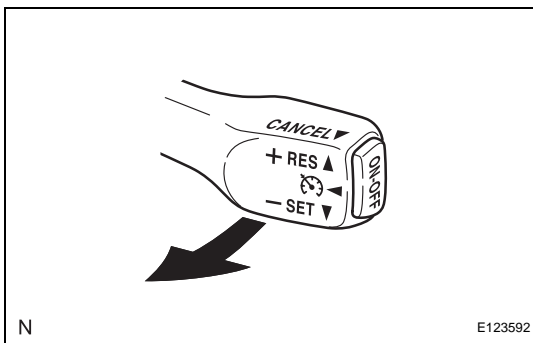
#### 4. INSPECT CANCEL SWITCH



- (a) Push the main switch button ON.
- (b) Drive at a desired speed (40 km/h (25 mph) or higher).



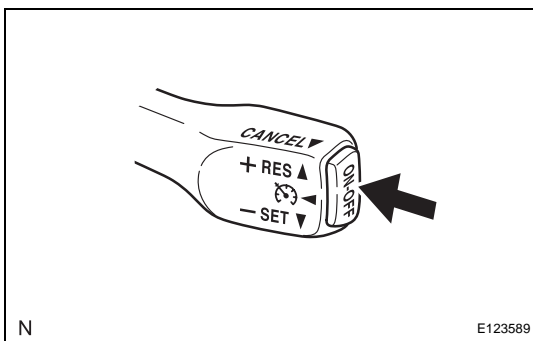
- (c) Press the control switch to -/SET.



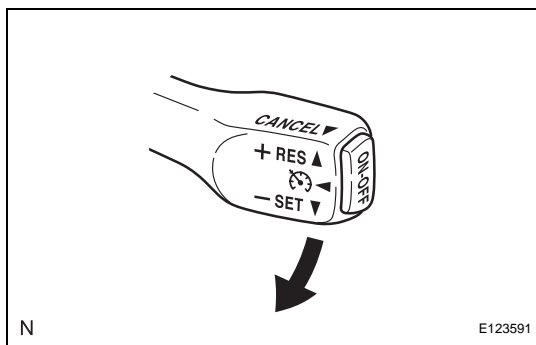
- (d) When operating one of the following, check that the cruise control system is canceled.
  - Depressing the brake pedal
  - Pushing the cruise control main switch OFF
  - Pulling the cruise control switch to CANCEL
  - Moving the shift lever to any position except D or 3

CC

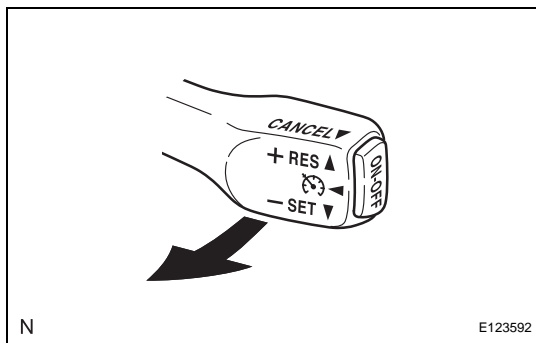
#### 5. INSPECT RES (RESUME) SWITCH



- (a) Push the main switch button ON.
- (b) Drive at a desired speed (40 km/h (25 mph) or higher).

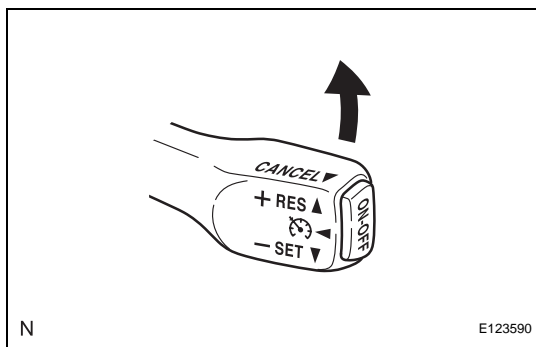


(c) Press the control switch to -/SET.



(d) When operating one of the following, check that the cruise control system is canceled.

- Depressing the brake pedal
- Pulling the cruise control switch to CANCEL
- Moving the shift lever to any position except D or 3



(e) After the control switch is pressed to +/RES at a driving speed of more than 40 km/h (25 mph), check that the vehicle restores the speed before the cancellation.

## REGISTRATION

### 1. PERFORM VEHICLE STABILITY CONTROL SYSTEM RECOGNITION IN ECM

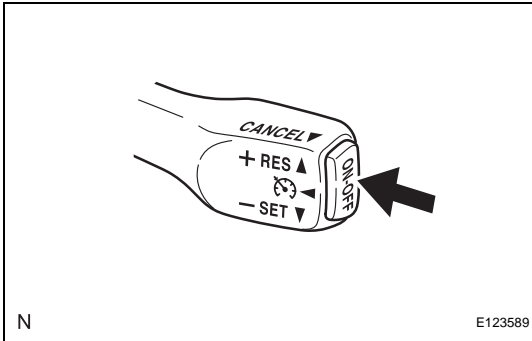
**NOTICE:**

**If the vehicle has both cruise control and VSC, when replacing ECM, perform VSC recognition as follows:**

- (a) Turn the ignition switch ON.
- (b) After waiting approximately 5 seconds, turn the cruise control main switch ON.
- (c) Keep the cruise control main switch ON for approximately 5 seconds or more.

**HINT:**

The VSC recognition will not be reflected in the cruise control system until the ignition switch is turned OFF and ON.



## PROBLEM SYMPTOMS TABLE

### HINT:

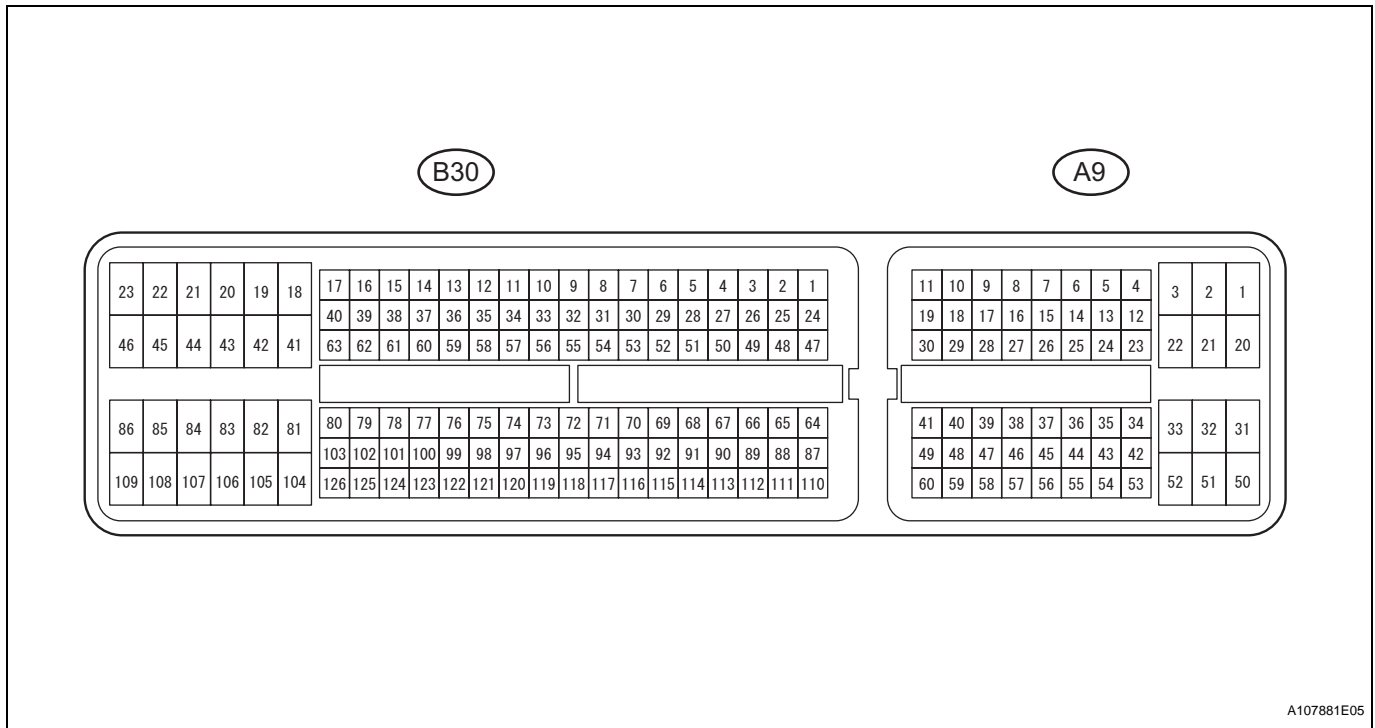
- Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

### Cruise control system

Symptom	Suspected Area	See page
SET not occurring or CANCEL occurring (DTC is normal)	1. Input signal circuit	<a href="#">CC-25</a>
	2. Vehicle speed sensor circuit	<a href="#">CC-20</a>
	3. Stop light switch circuit	<a href="#">CC-21</a>
	4. Park / neutral position switch circuit	<a href="#">AX-39</a>
	5. ECM	-
SET not occurring or CANCEL occurring (DTC is not output)	1. Cruise control switch circuit	<a href="#">CC-29</a>
	2. ECM	-
Actual vehicle speed deviates above or below the set speed	1. Vehicle speed sensor circuit	<a href="#">CC-20</a>
	2. ECM	-
Gear shifting occurs frequently between 3rd and O/D when driving on	1. Vehicle speed sensor circuit	<a href="#">CC-20</a>
	2. ECM	-
Cruise control not canceled, even when brake pedal is depressed	1. Stop light switch circuit	<a href="#">CC-21</a>
	2. ECM	-
Cruise control not canceled, even when transmission is shifted to N	1. Park / neutral position switch circuit	<a href="#">AX-108</a>
	2. ECM	-
Control switch does not operate (-/SET, +/-RES, CANCEL not possible)	1. Cruise control switch circuit	<a href="#">CC-29</a>
	2. ECM	-
SET possible at 40 km/h (25 mph) or less, or CANCEL does not operate	1. Vehicle speed sensor circuit	<a href="#">CC-20</a>
	2. ECM	-
Poor response in ACCEL and RESUME modes	1. ECM	-
O/D does not resume, even though road is not uphill	1. Vehicle speed sensor circuit	<a href="#">CC-20</a>
	2. ECM	-
DTC memory is erased	1. ECM	-
DTC is not output, or is output when it should not be	1. Diagnosis circuit	<a href="#">CC-33</a>
	2. ECM	-
Cruise main indicator light remains illuminated or fails to light up	1. Cruise control switch circuit	<a href="#">CC-29</a>
	2. Combination meter	<a href="#">ME-52</a>
	3. ECM	-

## TERMINALS OF ECM

### 1. CHECK ECM



- Disconnect the A9 and B30 connectors.
- Measure the voltage and resistance of the wire harness side connectors.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
STP (A9-36) - E1 (B30-104)	L - BR	Stop light switch input signal	Depress brake pedal	10 to 14 V
			Release brake pedal	Below 1 V
CCS (A9-40) - E1 (B30-104)	L - BR	Cruise control main switch signal	CANCEL switch hold ON	1.386 to 1,694 $\Omega$
			-/SET switch hold ON	567 to 693 $\Omega$
			+/RES switch hold ON	216 to 264 $\Omega$
			Main switch OFF	10 k $\Omega$ or higher
			Main switch ON	Below 1 $\Omega$
ST1- (A9-35) - E1 (B30-104)	GR - BR	Stop light switch input signal	Release brake pedal	10 to 14 V
			Depress brake pedal	Below 1 V

If the result is not as specified, there may be a malfunction on the wire harness side.

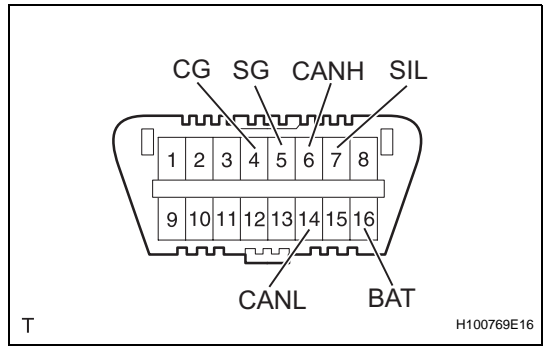
DIAGNOSIS SYSTEM

1. DESCRIPTION

The ECM controls the function of cruise control on this vehicle. Data of the cruise control or DTC can be read from the DLC3 of the vehicle. When trouble occurs with cruise control, check that the CRUISE main indicator does not come on but DTC inspection is performed. Therefore, when there seems to be a problem with the cruise control, use the intelligent tester (with CAN VIM) or SST to check and troubleshoot it.

2. CHECK DLC3

- (a) The ECM uses ISO 15765-4 for communication. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.



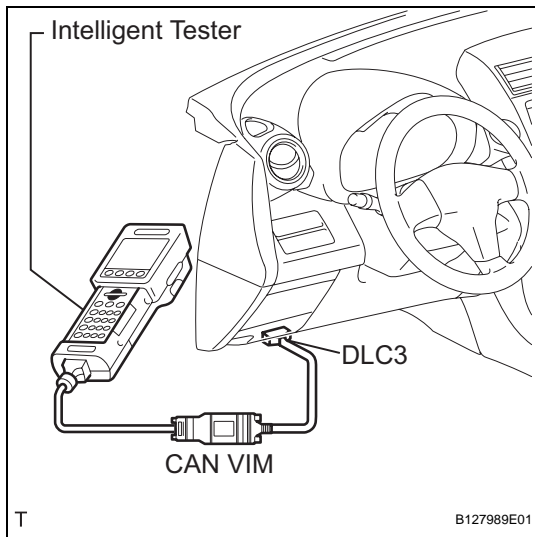
Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus '+' line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch OFF*	54 to 69 Ω
CANH (6) - Body ground	HIGH-level CAN bus line	Ignition switch OFF*	1 MΩ or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF*	200 Ω or higher
CANL (14) - Body ground	LOW-level CAN bus line	Ignition switch OFF*	1 MΩ or higher
CANL (6) - CG (4)	LOW-level CAN bus line	Ignition switch OFF*	200 Ω or higher

NOTICE:

\*: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, other switches or doors.

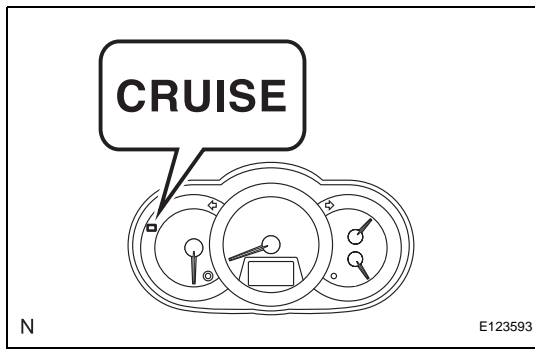
If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.



**HINT:**

Connect the cable of the intelligent tester (with CAN VIM) to the DLC3, turn the ignition switch ON and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.

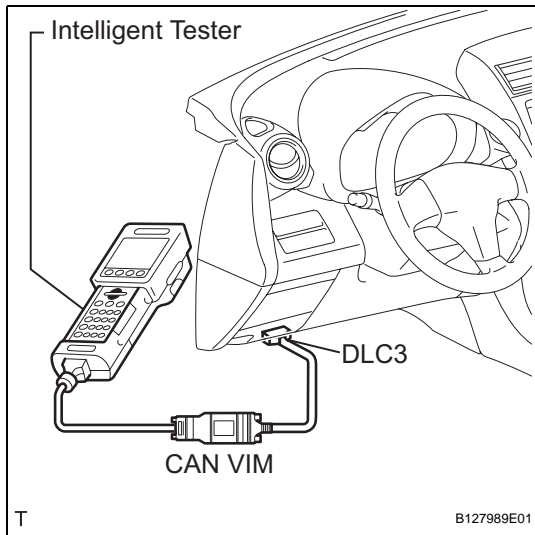
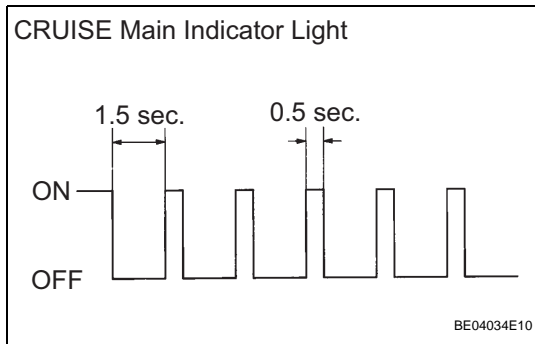
- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still not possible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.

**3. CHECK INDICATOR**

- Turn the ignition switch ON.
- Check that the CRUISE main indicator light illuminates when the cruise control main switch is turned ON, and that the indicator light goes off when the main switch is turned OFF.

**HINT:**

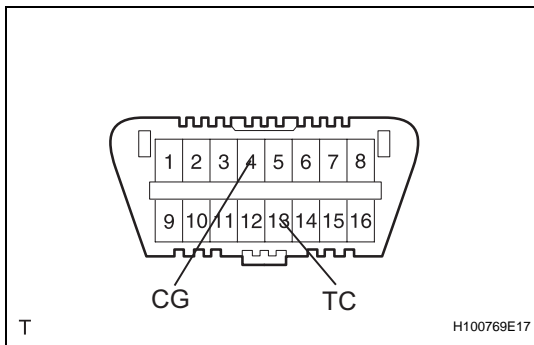
- If the indicator check result is not normal, proceed to troubleshooting for the combination meter section (see page [ME-15](#)).
- If a malfunction occurs in the speed sensor or stop light switch, etc. during cruise control driving, the ECM activates the AUTO CANCEL of the cruise control and the CRUISE main indicator light blinks to inform the driver of a malfunction. At the same time, the malfunction is stored in memory as a diagnostic trouble code.

**DTC CHECK / CLEAR****1. CHECK DTC (USING INTELLIGENT TESTER)**

- Connect the intelligent tester (with CAN VIM) to the DLC3.
- Turn the ignition switch ON.
- Read the DTCs by following the directions on the tester screen.

**HINT:**

Refer to the intelligent tester operator's manual for further details.



## 2. CHECK DTC (USING SST CHECK WIRE)

- Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

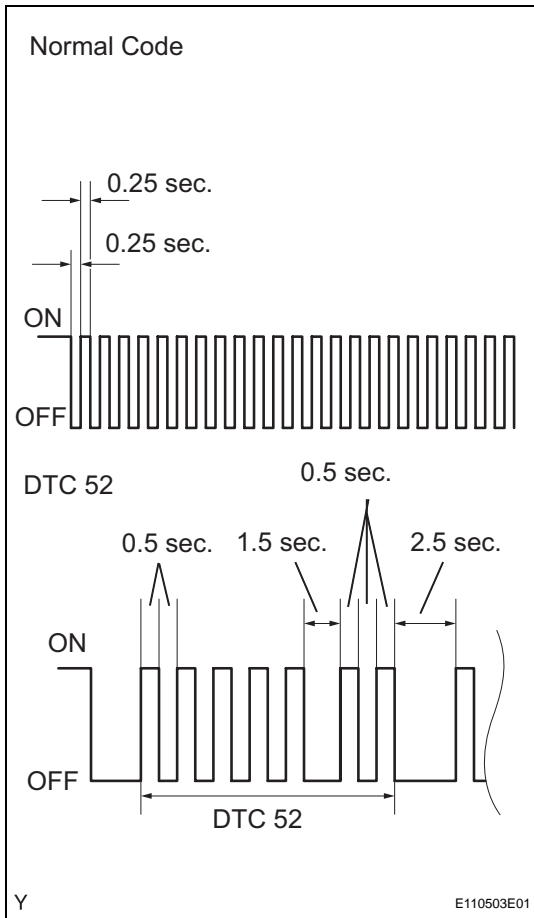
**SST 09843-18040**

- Turn the ignition switch ON.

- Read the DTC on the CRUISE main indicator light.

**HINT:**

- If the DTC is not output, inspect the diagnosis circuit.
- As an example, the blinking patterns of a normal code and code 52 are shown in the illustration.



## 3. CLEAR DTC (USING INTELLIGENT TESTER)

- Connect the intelligent tester (with CAN VIM) to the DLC3.

- Turn the ignition switch ON.

- Read the DTCs by following the directions on the tester screen.

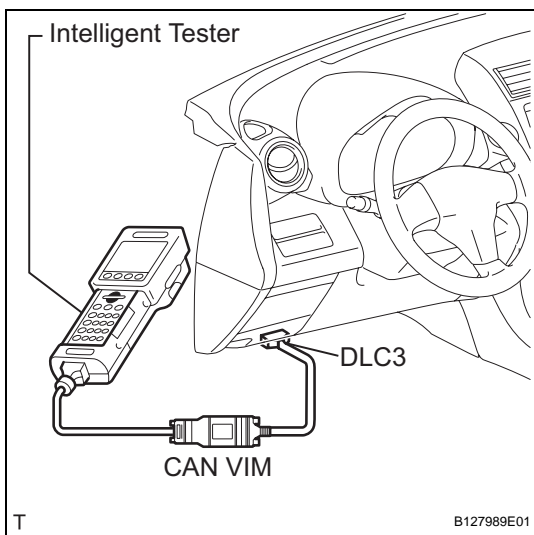
**HINT:**

Refer to the intelligent tester operator's manual for further details.

## 4. CLEAR DTC (USING SST CHECK WIRE)

- Read and record DTCs from the CRUISE main indicator light. Turn the ignition switch OFF.

- If DTCs are indicated, repair the relevant circuits using the DTC Chart (see page [CC-18](#)).



- (c) Clear the DTCs according to one of the following procedures.
  - Disconnect the negative (-) battery cable for more than 1 minute.
  - Remove the EFI NO. 1 and ETCS fuses from the engine room relay block (located inside the engine compartment) for more than 1 minute.
- (d) Recheck for DTCs.

FAIL-SAFE CHART

HINT:  
If the following conditions are detected while the cruise control is in operation, the system clears the stored vehicle speed in the ECM and cancels the cruise control operation.

Cruise control system

Vehicle Condition	Auto Cancel Condition	Fail-safe Deactivation Condition
CRUISE main indicator light blinks	<ul style="list-style-type: none"><li>There is open or short in stop light switch circuit</li><li>There is problem with vehicle speed signal</li><li>There is problem with throttle position sensor and motor</li><li>VSC is damaged*</li><li>There is communication malfunction between VSC and ECM*</li></ul>	Turn cruise control main switch ON again
CRUISE main indicator light blinks	<ul style="list-style-type: none"><li>There is problem with input circuit of stop light switch circuit</li><li>There is problem with cancel circuit</li></ul>	Turn ignition switch ON

HINT:  
\*: w/ VSC

## DATA LIST / ACTIVE TEST

### 1. READ DATA LIST

#### HINT:

Using the intelligent tester's DATA LIST allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to save time.

- (a) Connect the intelligent tester (with CAN VIM) to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Read the DATA LIST according to the display on the tester.

#### ECM

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
VEHICLE SPD	Vehicle speed / min.: 0 km/h (0 mph) max.: 200 km/h (125 mph)	Actual vehicle speed	-
MEMORY SPD	Vehicle speed / min.: 0 km/h (0 mph) max.: 200 km/h (125 mph)	Actual vehicle speed stored in memory	-
THROTTLE	Throttle operating angle / min.: 0 deg. max.: 125 deg.	Actual demanded throttle angle	-
CRUISE CONTROL	Cruise control / ON or OFF	ON: Cruise control is SET OFF: Cruise control is UNSET	-
MAIN SW (MAIN)	Main switch (Main CPU) / ON or OFF	ON: Main switch (Main CPU) is SET OFF: Main switch (Main CPU) is UNSET	-
CCS READY M	Switch ready (Main CPU) / ON or OFF	ON: Switch ready (Main CPU) is SET OFF: Switch ready (Main CPU) is UNSET	-
CCS INDICATOR M	Switch indicator (Main CPU) / ON or OFF	ON: Switch indicator (Main CPU) is SET OFF: Switch indicator (Main CPU) is UNSET	-
CANCEL SW	CANCEL switch / ON or OFF	ON: CANCEL switch is SET OFF: CANCEL switch is UNSET	-
SET/COAST SW	- / SET switch / ON or OFF	ON: - / SET switch is SET OFF: - / SET switch is UNSET	-
RES/ACC SW	+ / RES switch / ON or OFF	ON: + / RES switch is SET OFF: + / RES switch is UNSET	-
STP LIGHT SW M	Stop light switch signal (Main CPU) / ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
SHIFT D POS	Shift D position / ON or OFF	ON: Shift is D or 3 position OFF: Shift is except D or 3 position	-

## DIAGNOSTIC TROUBLE CODE CHART

### HINT:

If a trouble code is displayed during the DTC check, check the trouble areas listed for that code in the table below and proceed to the appropriate page.

### Cruise control system

DTC No.	Detection Item	Trouble Area	See page
P0500/21	Vehicle Speed Sensor "A"	- Combination meter - Vehicle speed sensor - Vehicle speed sensor circuit - ECM	<a href="#">CC-20</a>
P0503/23	Vehicle Speed Sensor Circuit	- Combination meter - Vehicle speed sensor - Vehicle speed sensor circuit - ECM	<a href="#">CC-20</a>
P0571/52	Stop Light Switch Circuit	- Stop light switch - BRK relay circuit* - Wire harness - ECM	<a href="#">CC-21</a>
P0607/54	Input Signal Circuit Abnormal	- ECM	<a href="#">CC-25</a>

### Cruise control system (w/ VSC)

DTC No.	Detection Item	Trouble Area	See page
P1578/69	Brake System Malfunction	- VSC system	<a href="#">CC-26</a>
P1630/64	Communication Error from Skid Control ECU to ECM	- Communication circuit - Skid control - ECM	<a href="#">CC-27</a>
P1631/65	Communication Error from ECM to Skid Control ECU	- Communication circuit - ECM - Skid control	<a href="#">CC-28</a>
U0100/78	Communication Stop from ECM to Distance Control ECU, VSC	- Communication circuit - ECM - Skid control	<a href="#">CC-28</a>
U0122/82	Communication Stop from VSC to ECM	- Communication circuit - Skid control - ECM	<a href="#">CC-27</a>

<b>DTC</b>	<b>P0500/21</b>	<b>Vehicle Speed Sensor "A"</b>
<b>DTC</b>	<b>P0503/23</b>	<b>Vehicle Speed Sensor Circuit</b>

## DESCRIPTION

Refer to the SFI system (see page [ES-224](#)).

DTC No.	DTC Detection Condition	Trouble Area
P0500/21 P0503/23	No vehicle speed sensor signal to ECM under conditions (a) and (b) (2 trip detection logic): (a) Cruise control system is operating (b) Vehicle is being driven	<ul style="list-style-type: none"><li>• Combination meter</li><li>• Vehicle speed sensor</li><li>• Vehicle speed sensor circuit</li><li>• ECM</li></ul>

## WIRING DIAGRAM

Refer to the SFI system (see page [ES-224](#)).

## INSPECTION PROCEDURE

Refer to the SFI system (see page [ES-224](#)).

DTC

P0571/52

Stop Light Switch Circuit

DESCRIPTION

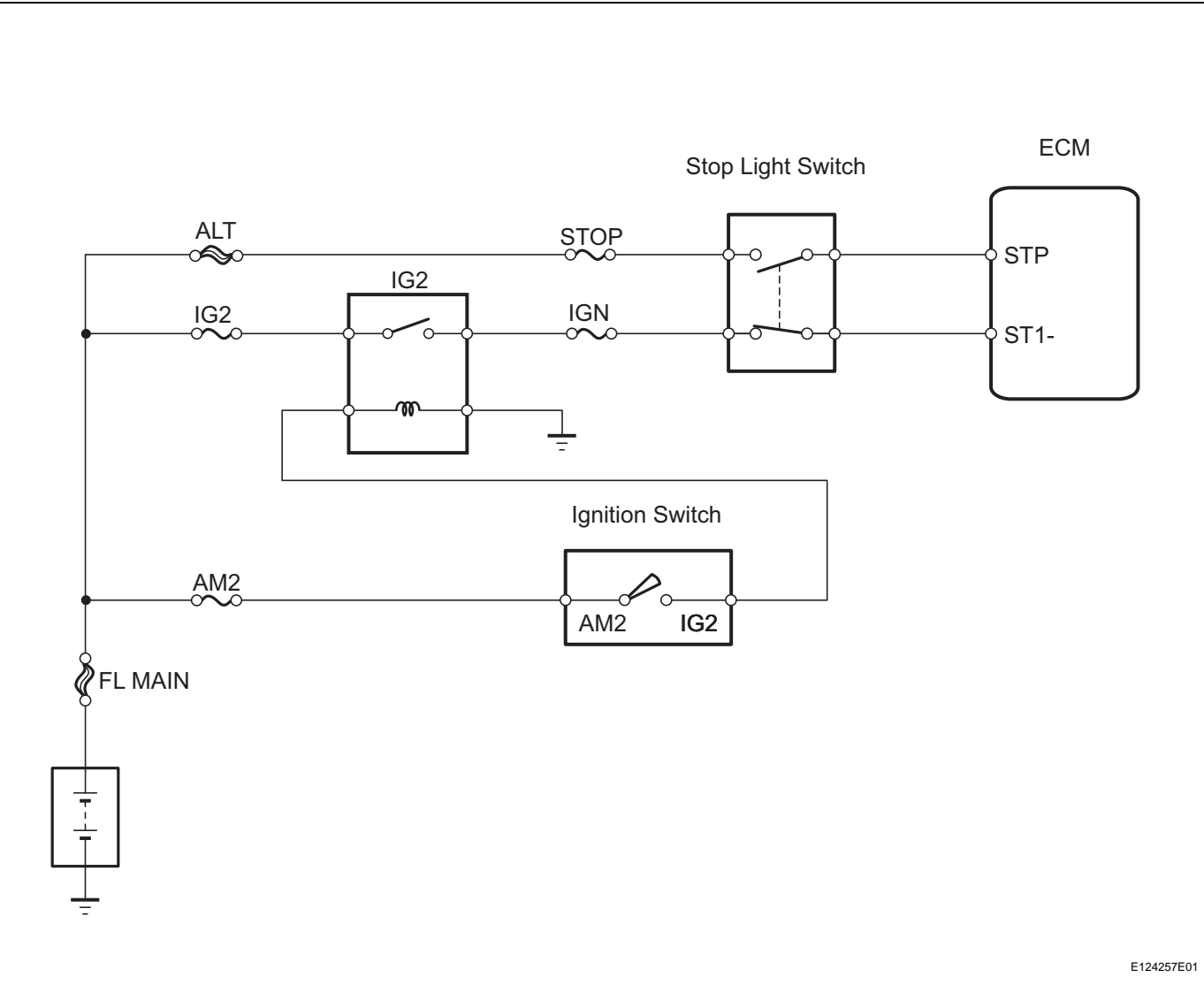
While driving with the cruise control, if the ECM detects that the brake pedal is depressed, the cruise control operation will be canceled. The stop light switch sends brake pedal status signals to the ECM. When the brake pedal is not depressed, terminal ST1- is equal to the positive (+) battery voltage and terminal STP is below 1 V. When the brake pedal is depressed, the ECM cancels cruise control operation. The ECM outputs this DTC when the voltage of terminals ST1- and STP are both below 1 V for 0.5 seconds or more at the same time. The fail-safe function operates to enable normal driving even if there is a malfunction in the stop light signal circuit.

DTC No.	DTC Detection Condition	Trouble Area
P0571/52	ECM detects malfunction of stop light switch circuit under both of following conditions: <ul style="list-style-type: none"><li>Voltage of terminal STP is less than 1 V for 0.5 seconds or more</li><li>Voltage of terminal ST1- is less than 1 V for 0.5 seconds or more</li></ul>	<ul style="list-style-type: none"><li>Stop light switch</li><li>BRK relay circuit*</li><li>Wire harness</li><li>ECM</li></ul>

HINT:

\*: w/ Vehicle stability control system

WIRING DIAGRAM





## INSPECTION PROCEDURE

**1 READ VALUE OF INTELLIGENT TESTER (STOP LIGHT SWITCH)**

- (a) Check the DATA LIST for proper functioning of the stop light switch.

**ECM**

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
ST LIGHT SW M	Stop light switch signal (Main CPU) / ON or OFF	ON: Brake pedal is depressed OFF: Brake pedal is released	-

**OK:**

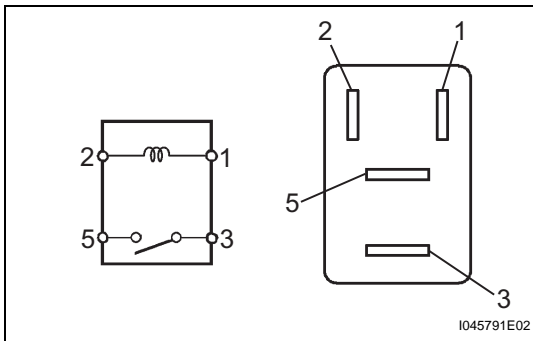
Display changes according to brake pedal operation described in above table.

**NG****REPLACE ECM****OK****2 INSPECT FUSE (STOP, IGN, IG2)**

- (a) Remove the STOP and IGN fuses from the instrument panel junction block.  
 (b) Remove the IG2 fuse from the engine room No. 1 relay block.  
 (c) Measure the resistance of the fuses.

**Standard resistance:**

Below 1  $\Omega$

**NG****REPLACE FUSE****OK****3 INSPECT IG2 RELAY**

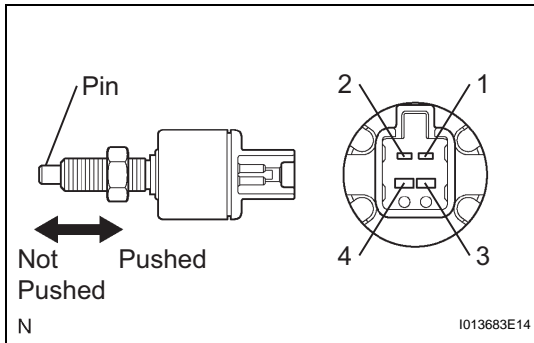
- (a) Remove the IG2 relay from the instrument panel junction block.

- (b) Measure the resistance of the relay.

**Standard resistance**

Tester Connection	Specified Condition
3 - 5	10 k $\Omega$ or higher
	Below 1 $\Omega$ (when battery voltage is applied to terminals 1 and 2)

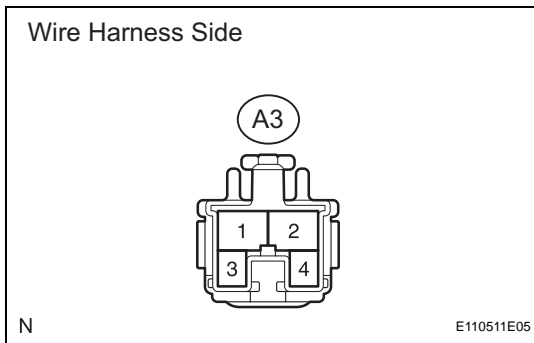
**NG****REPLACE IG2 RELAY****OK****CC**

**4 INSPECT STOP LIGHT SWITCH**

- (a) Remove the stop light switch.  
 (b) Measure the resistance of the switch.

**Standard resistance**

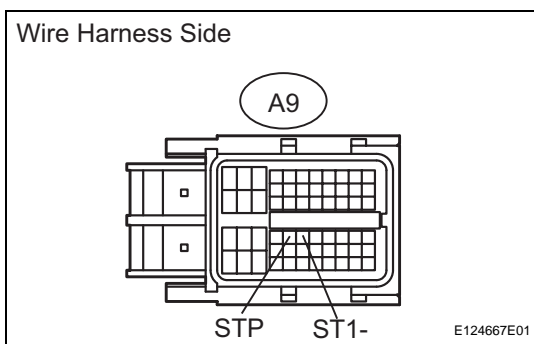
Tester Connection	Switch Condition	Specified Condition
1 - 2	Not pushed	Below 1 $\Omega$
3 - 4	Pushed	
1 - 2	Pushed	10 k $\Omega$ or higher
3 - 4	Not pushed	

**NG****REPLACE STOP LIGHT SWITCH****OK****5 CHECK WIRE HARNESS (SWITCH - BATTERY)**

- (a) Disconnect the A3 switch connector.  
 (b) Measure the voltage of the wire harness side connector.

**Standard voltage**

Tester Connection	Switch Condition	Specified Condition
A3-3 - Body ground	Always	10 to 14 V
A3-2 - Body ground	Ignition switch ON	

**NG****REPAIR OR REPLACE HARNESS AND CONNECTOR****OK****6 CHECK WIRE HARNESS (ECM - BATTERY)**

- (a) Disconnect the A9 ECM connector.  
 (b) Turn the ignition switch ON.  
 (c) Measure the voltage of the wire harness side connector.

**Standard voltage**

Tester Connection	Switch Condition	Specified Condition
A9-35 (STP) - Body ground	Depressed	10 to 14 V
A9-36 (ST1-) - Body ground	Released	
A9-35 (STP) - Body ground	Released	Below 1 V
A9-36 (ST1-) - Body ground	Depressed	

**NG****REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE ECM

**DTC****P0607/54****Input Signal Circuit Abnormal****DESCRIPTION**

This DTC expresses the internal abnormalities of the ECM.

DTC No.	DTC Detection Condition	Trouble Area
P0607/54	When either of following conditions is met: <ul style="list-style-type: none"><li>• Cruise control input signal abnormal</li><li>• Stop light switch input signal abnormal</li></ul>	ECM

**INSPECTION PROCEDURE****1****CHECK FOR DTC**

- (a) Clear the DTC (see page [CC-15](#)).
- (b) Check for DTC (see page [CC-15](#)).

**OK:****DTC is not output.****NG****REPLACE ECM****OK****END**

**DTC****P1578/69****Brake System Malfunction****DESCRIPTION**

This DTC is output when the VSC system has a problem. Check the VSC system when this DTC is output.

DTC No.	DTC Detection Condition	Trouble Area
P1578/69	ECM receives a brake system error signal for 0.2 seconds or more while cruise control is in operation	VSC system

**INSPECTION PROCEDURE****HINT:**

This circuit uses CAN communication. Therefore, if there are any malfunctions in the communication circuit, one or more DTCs in the CAN communication system are output.

**1****CHECK BRAKE SYSTEM**

Refer to HOW TO PROCEED WITH TROUBLESHOOTING  
(see page [BC-20](#)).

<b>DTC</b>	<b>P1630/64</b>	<b>Communication Error from Skid Control ECU to ECM</b>
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<b>DTC</b>	<b>U0122/82</b>	<b>Communication Stop from VSC to ECM</b>
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## DESCRIPTION

The skid control ECU sends signals such as cruise control cancel demand signals and brake operation demand from ECM response signals to the ECM when the cruise control system is in operation.

DTC No.	DTC Detection Condition	Trouble Area
P1630/64	While cruise control is either preparing for operation or operating, if communication data from skid control ECU is logically inconsistent for a certain amount of time, ECM records this logical error code	<ul style="list-style-type: none"> <li>• Communication circuit</li> <li>• Skid control ECU</li> <li>• ECM</li> </ul>
U0122/82	While cruise control is either preparing for operation or operating, if communication data from skid control ECU is invalid for a certain amount of time, ECM records communication cut off code	<ul style="list-style-type: none"> <li>• Communication circuit</li> <li>• Skid control ECU</li> <li>• ECM</li> </ul>

## INSPECTION PROCEDURE

### HINT:

This circuit uses CAN communication. Therefore, if there are any malfunctions in the communication circuit, one or more DTCs in the CAN communication system are output.

<b>1</b>	<b>CHECK CAN COMMUNICATION SYSTEM</b>
----------	---------------------------------------

Refer to HOW TO PROCEED WITH TROUBLESHOOTING (see page [CA-8](#)).

<b>DTC</b>	<b>P1631/65</b>	<b>Communication Error from ECM to Skid Control ECU</b>
<b>DTC</b>	<b>U0100/78</b>	<b>Communication Stop from ECM to Distance Control ECU, VSC</b>

## DESCRIPTION

Therefore, if the skid control ECU detects a communication error from the ECM, it sends a malfunction signal back to the ECM.

<b>DTC No.</b>	<b>DTC Detection Condition</b>	<b>Trouble Area</b>
P1631/65	While the cruise control is either preparing for operation or operating, if the ECM continuously receives a logical error signal from the skid control ECU for a certain amount of time, the ECM records this logical error code	<ul style="list-style-type: none"> <li>• Communication circuit</li> <li>• ECM</li> <li>• Skid control ECU</li> </ul>
U0100/78	While the cruise control is either preparing for operation or operating, if the ECM continuously receives a communication cut off signal from the skid control ECU for a certain amount of time, the ECM records this communication cut off code	<ul style="list-style-type: none"> <li>• Communication circuit</li> <li>• ECM</li> <li>• Skid control ECU</li> </ul>

## INSPECTION PROCEDURE

### HINT:

This circuit uses CAN communication. Therefore, if there are any malfunctions in the communication circuit, one or more DTCs in the CAN communication system are output.

<b>1</b>	<b>CHECK CAN COMMUNICATION SYSTEM</b>
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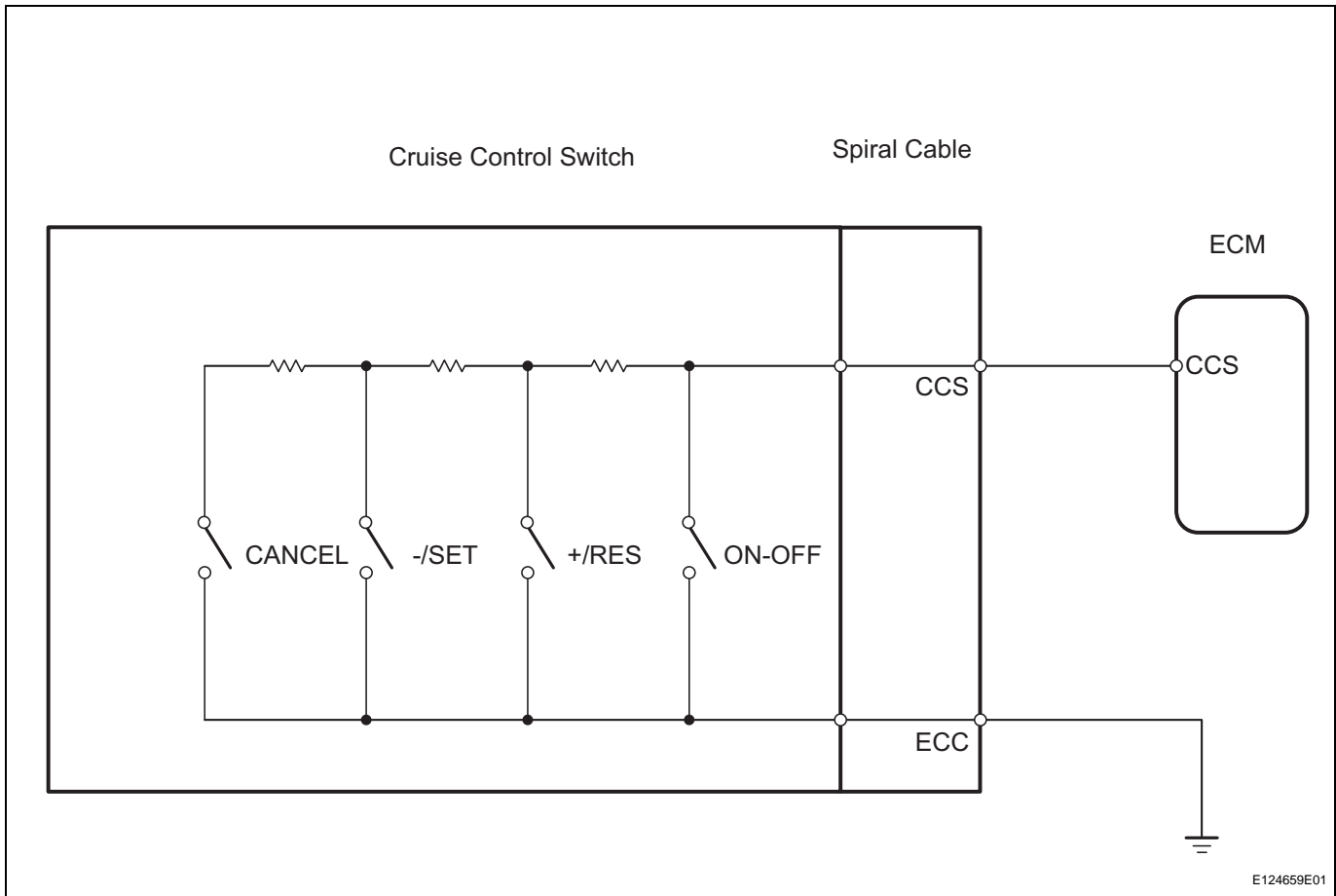
Refer to HOW TO PROCEED WITH TROUBLESHOOTING (see page [CA-8](#)).

## Cruise Control Switch Circuit

### DESCRIPTION

This circuit sends signals to the ECM depending on the cruise control switch condition. The battery supplies positive (+) battery voltage to the cruise control switch. Then terminal CCS of the ECM receives the voltage according to the switch condition.

### WIRING DIAGRAM



## CC

### INSPECTION PROCEDURE

1

#### READ VALUE OF INTELLIGENT TESTER (CRUISE CONTROL MAIN SWITCH)

- (a) Check the DATA LIST for proper functioning of the cruise control switch.

#### ECM

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
MAIN SW (MAIN)	Main switch (Main CPU) / ON or OFF	ON: Main switch (Main CPU) is ON OFF: Main switch (Main CPU) is OFF	-
CANCEL SW	CANCEL switch / ON or OFF	ON: CANCEL switch is ON OFF: CANCEL switch is OFF	-
SET/COAST SW	- / SET switch / ON or OFF	ON: - / SET switch is ON OFF: - / SET switch is OFF	-



Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
RES/ACC SW	+ / RES switch / ON or OFF	ON: + / RES switch is ON OFF: + / RES switch is OFF	-

OK:

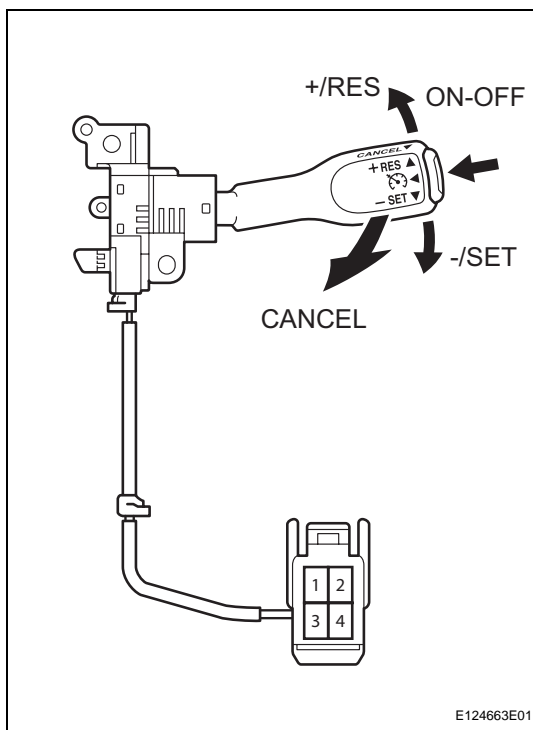
When cruise control switch operation is performed, the results will be same as above.

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

NG

2

**INSPECT CRUISE CONTROL SWITCH**

- (a) Disconnect the cruise control switch connector.  
(b) Measure the resistance of the switch.

**Standard resistance**

Tester Connection	Switch Condition	Specified Condition
3 - 4	cruise control switch ON	10 k $\Omega$ or higher
	cruise control switch OFF	Below 1 $\Omega$
	+ / RES	216 to 264 $\Omega$
	- / SET	567 to 693 $\Omega$
	CANCEL	1,386 to 1,694 $\Omega$

NG

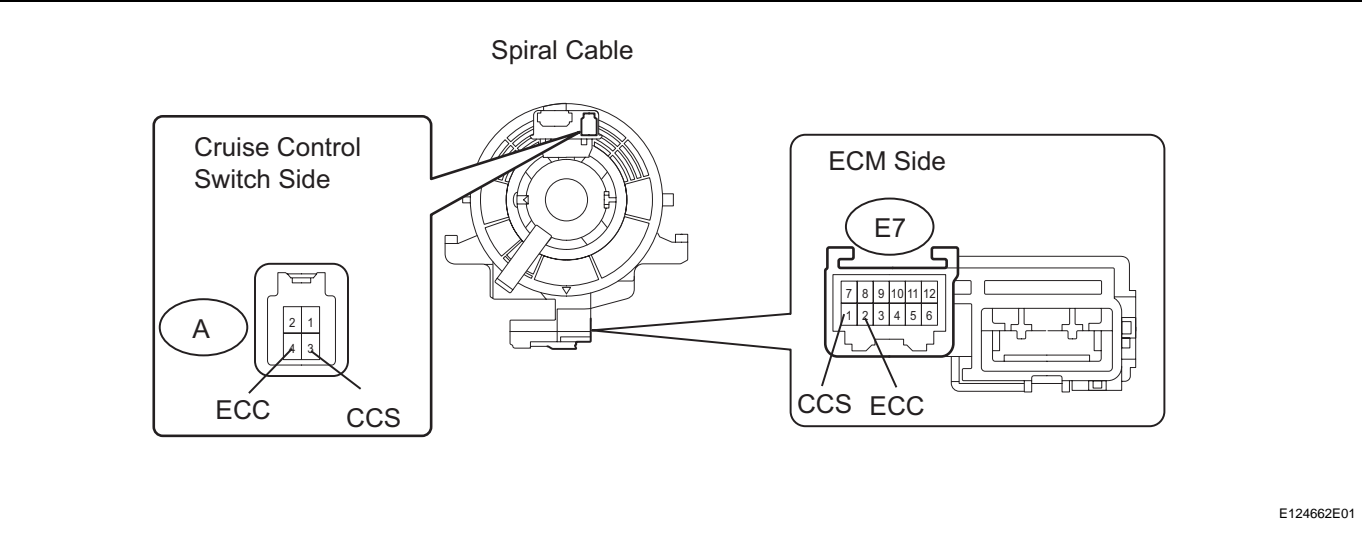
**REPLACE CRUISE CONTROL MAIN SWITCH**

OK

CC

3

INSPECT SPIRAL CABLE SUB-ASSEMBLY



- (a) Disconnect the cruise control switch connector.
- (b) Disconnect the E7 cable connector.
- (c) Measure the resistance of the spiral cable.

Standard resistance

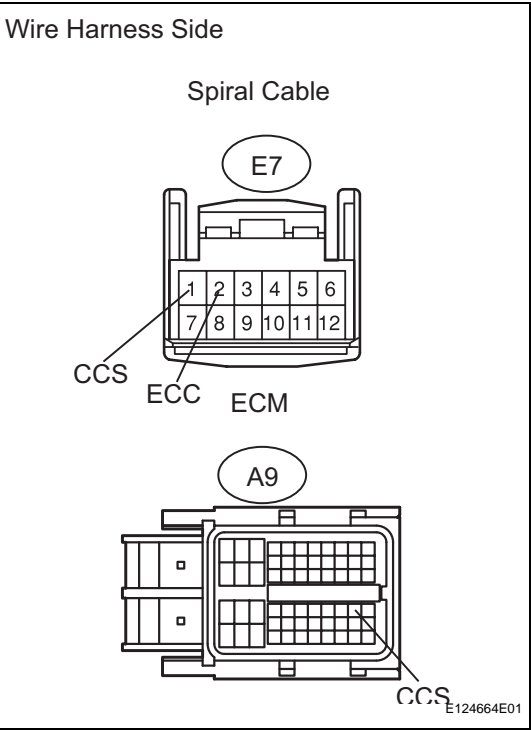
Tester Connection	Specified Condition
A-3 (CCS) - E7-1 (CCS)	Below 1 Ω
A-2 (ECC) - E7-2 (ECC)	

OK

NG

REPLACE SPIRAL CABLE SUB-ASSEMBLY

**4    CHECK WIRE HARNESS (SPIRAL CABLE - ECM AND BODY GROUND)**



- (a) Disconnect the E7 cable connector.
- (b) Disconnect the A9 ECM connector.
- (c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

Tester Connection	Specified Condition
E7-1 (CCS) - A9-40 (CCS)	Below 1 $\Omega$
E7-2 (ECC) - Body ground	

**NG**

**REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

## TC and CG Terminal Circuit

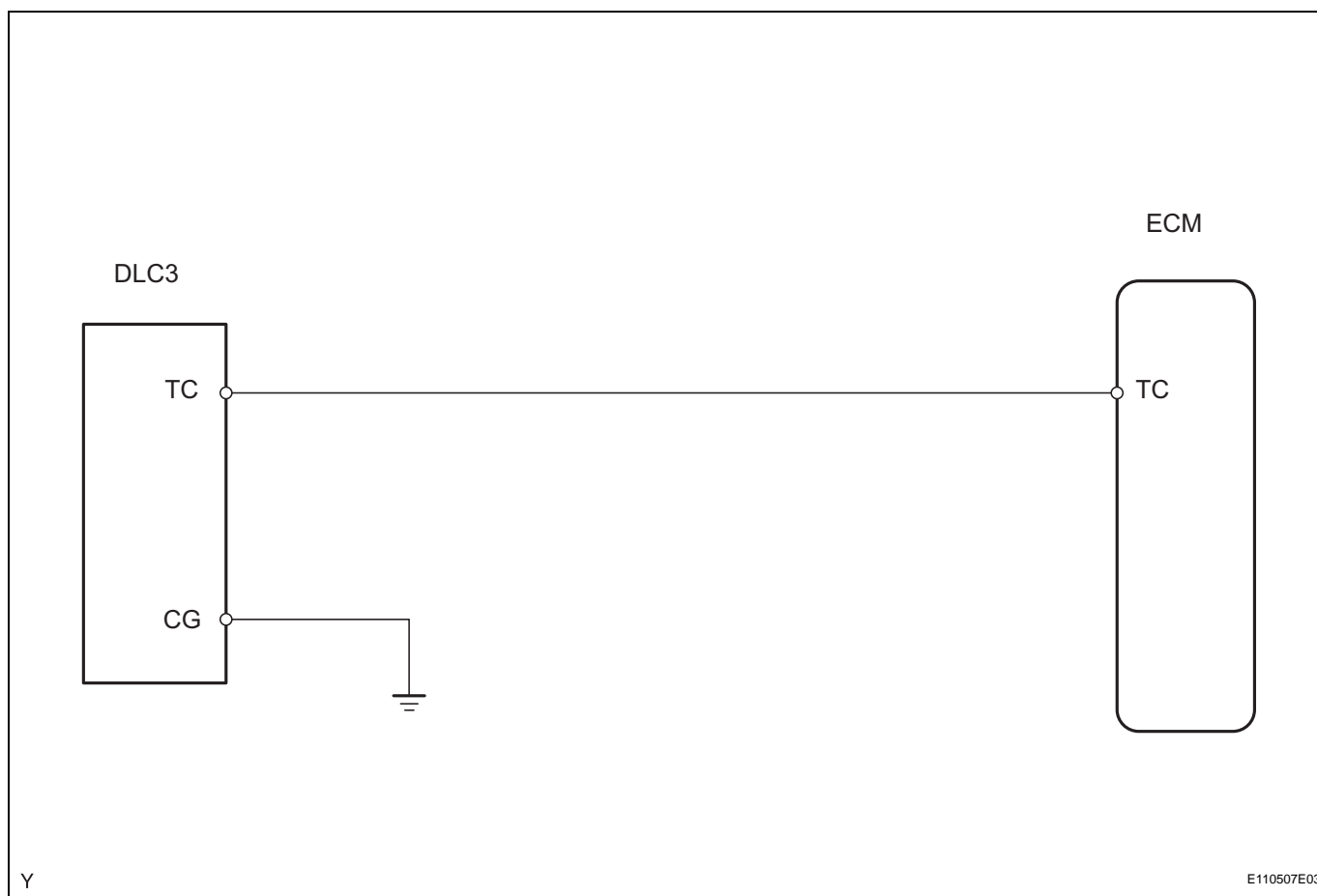
### DESCRIPTION

Connecting terminals TC and CG of the DLC3 enables DTCs to be read through blinking patterns of the combination meter's CRUISE main indicator light.

HINT:

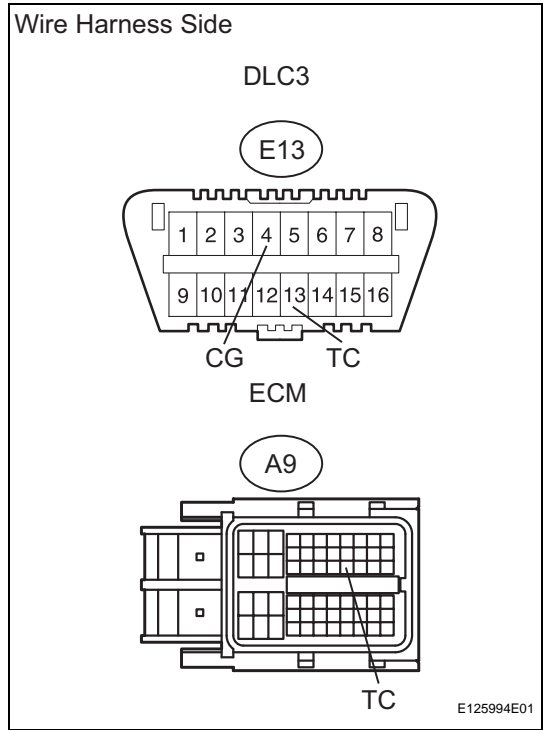
When a warning light of the combination meter blinks continuously, terminal TC of the DLC3 or an ECM may have a ground short.

### WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK WIRE HARNESS (DLC3 - ECM AND BODY GROUND)



- (a) Disconnect the E13 DLC3 connector.
- (b) Disconnect the A9 ECM connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
E13-13 (TC) - A9-27 (TC)	Below 1 $\Omega$
E13-4 (CG) - Body ground	

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE ECM